EXPLANATION OF PLATE XI.

Fig. 1. a. a. a. Small lumps of earth showing the pupæ in their little oval chambers; b. a dark circular area in the lump showing the empty chamber after the pupa has been removed; c. an adult beetle after transforming and still in the pupal chamber; d. d. d. d. adult beetles—all natural size.

Fig. 2.—Apple showing the crescent-shaped cuts made by the females after laying eggs—natural size.

Fig. 3.—Full grown larvæ and their work in a fallen apple—natural size.

Fig. 4.—Fall or late summer injuries on apple made by the feeding of the new generation of beetles. These injuries though natural size are larger than the average.

Fig. 5.—Fall or late summer injuries made on peach by the feeding of the new generation of beetles—natural size.

(To be continued.)

NEW INDIAN GALL MIDGES.

BY E. P. FELT, ALBANY, N. Y.

Below are characterized some exceptionally interesting new species and genera occurring in a small collection recently submitted for study by Prof. T. Bainbrigge Fletcher, Imperial Entomologist, Agricultural Research Institute, Pusa, Bihar, India.

Colpodia fletcheri, n. sp.

The midge described below is provisionally referred to this genus because the sum total of the characters would suggest this group rather than another, though the cross-vein is almost parallel with costa, and there is an approach to a condition found in the genus Didactylomyia Felt. The specimen was labeled "Pusa, Bihar, India, U. Bahadur, January 1, 1916." It is easily distinguished by the peculiar, foliate, curved production of the terminal clasp segment and the tri-lobed, foliate apex of the harpes.

Male.—Length 1.25 mm. Antennæ one-half longer than the

body, rather thickly haired; 15 segments, the fifth with a whitish transparent stem twice the length of the blackish subcylindric basal enlargement, the latter with a well marked, low circumfilum at the basal third and a moderately thick subapical whorl with long, stout setæ; terminal segment slightly produced, with a length a little over twice its diameter, the apex broadly and irregularly rounded. Palpi: first segment irregular, quadrate, the second a little longer, the third twice the length of the second, more slender, and the fourth a little longer than the third. Mesonotum fuscous yellowish. Scutellum reddish yellow, postscutellum reddish. Abdomen rather thickly haired, reddish brown. Wings long, slender as in Colpodia, the cross-vein nearly parallel with costa, the fifth vein uniting with the posterior margin at the distal third, its branch at the basal third; halteres yellowish transparent. Coxæ fuscous yellowish. Legs mostly dark straw, the three distal tarsal segments of the hind legs yellowish white; claws moderately long, strongly curved, unidentate, the pulvilli about half the length of the claws. Genitalia; basal clasp segment short, very broad, quadrate, with an irregular, fingerlike, heavily chitinized process at the internal distal angle; terminal clasp segment broad at base, tapering and curving irregularly to a slender, curved, somewhat foliate apex; dorsal and ventral plates indistinct. Harpes greatly produced, heavily chitinized, the distal free half tapering slightly to an irregularly expanded, tri-lobed, foliate appendage. Type Cecid. 1696.

Harpomyia, n. gen.

This genus was erected for a species belonging in the Dasyneura series having 12 antennal segments and may be most easily recognized by the greatly produced, somewhat sickle-shaped harpes of the male. These organs have a length greater than the entire hypopygium and extend posteriorly like a pair of scissor blades. Type *H. indica*, n. sp.

Harpomyia indica, n. sp.

The midges described below were labeled as having been reared from larvæ found under the lining of a felt cap, August 19, 1915, U. Bahadur.

Male.—Length 1 mm. Antennæ nearly as long as the body, thickly haired, yellowish brown; 12 segments, the fifth with a stem

one-half the length of the subcylindric basal enlargement, which latter has a length about three-fourths greater than its diameter, sub-basal and apical circumfili and subapically a moderately thick whorl of long, moderately stout setæ; terminal segment slightly produced, narrowly conical, with a length about three times its diameter. Palpi: first segment short, subquadrate, the second with a length three times its width, moderately broad, the third one-half longer than the second, more slender, and the fourth one-half longer than the third, more slender, the distal three sparsely haired. Eyes large, holoptic. Mesonotum pale yellowish brown, the submedian lines bright yellowish. Scutellum dark brown, postscutellum yellowish brown. Abdomen yellowish transparent, the genitalia relatively very large and subdorsal. Wings hyaline, subcosta uniting with the narrowly scaled costa near the basal third, the third vein a little before the apex; the fifth vein, indistinct distally, unites with the posterior margin near the distal third, its branch near the basal half; halteres whitish transparent. Coxæ, femora, tibiæ and the two basal tarsal segments mostly whitish or whitish transparent, the three distal tarsal segments dark brown; claws long, slender, moderately curved, unidentate, the pulvilli about three-fourths the length of the claws. Genitalia: basal clasp segment short, stout, curved, the sides nearly parallel, the apex roundly emarginate, the distal angles produced, the internal being longer and broader; dorsal and ventral plates indistinct, the harpes produced as two long, slender, chitinized, somewhat sickle-shaped pieces having a length greater than the entire hypopygium and extending posteriorly somewhat like a pair of scissors.

Female.—Length 1 mm. Antennæ extending to the base of the abdomen, rather thickly haired, yellowish brown; probably 12 segments, the fifth subsessile, broadly subconical, with a length about one-half greater than its diameter; low circumfili at the basal third and apically, a sparse basal and a scattering subapical whorl of long setæ; terminal segment reduced, broadly conical and tapering to a broadly rounded apex. Palpi; first segment with a length three times its diameter, the second a little longer, broader, the third twice the length of the second, more slender and the fourth one-fourth longer than the third, all sparsely haired. Eyes holoptic,

purplish brown. Ovipositor short, stout, the terminal lobes narrowly oval, with a length three times the width and sparsely setose. Other characters practically as in the male.

Pupa.—Length .9 mm., moderately stout, probably yellowish, the antennal cases extending nearly to the base of the abdomen, the wing cases to the third abdominal segment, and the posterior leg cases almost to the tip of the abdomen; the thoracic horns long, filamentaceous, the posterior extremity with submedian, conical processes.

Larva.—Length 2 mm., moderately slender; extremities, anterior conical, posterior broadly rounded, the head and breast-bone not recognizable in the preparation.

Egg Shell.—Length .5 mm., narrowly oval, the surface with numerous minute, hexagonal thickenings, the latter with minute spines arising mostly in or near the angles.

The large size of the egg shell suggests that the females of this species, like Miastor, produce comparatively few eggs.

Indodiplosis, n. gen.

This genus approaches Erosomyia Felt, in the greatly produced and broadly rounded posterior area of the wings, and is readily distinguished therefrom by all of the claws being unidentate, a feature unique so far as known to us, among the sub-tribe bifili. Type *I. mangiferæ,* n. sp.

Indodiplosis mangiferæ, n. sp.

Gall midges were labeled "March 23, 1914, in galls of Mango leaf. Pusa, A. H. C., No. 1023." A female, presumably conspecific, was received from the same source and labeled "C. No. 100, Mango leaves, Pusa, Bihar, T. Ram, September 26, 1915." These dates would indicate the possibility of there being two generations annually, though the appearance of the female may have been erratic and induced by abnormal conditions.

Male.—Length .75 mm. Antennæ nearly twice the length of the body, thickly haired, light brown; 14 segments, the fifth with the stems equal and one-fourth greater than their diameters respectively; basal enlargement subhemispheric, the distal enlargement subglobose, each with a sparse whorl of long, stout setæ and moderate circumfili, the loops, about eight in number, being

moderately stout and extending nearly to the base of the next enlargement. Palpi: the first segment slender, irregular, second narrowly oval, with a length about twice its diameter, the third a little longer and more slender than the second, the fourth one-half longer than the third, more slender. Mesonotum reddish brown. Scutellum and postscutellum yellowish. Abdomen rather thickly haired, brownish yellow, the genitalia darker. Wings hyaline, subcosta uniting with the margin near the basal third, and with the inclosed cell clouded with a chitinous thickening, the third vein nearly straight, joining the margin at the apex of the wing, the fifth indistinct distally, uniting with the posterior margin at the distal third, its branch at the basal third; halteres pale yellowish. Legs mostly dark straw; claws long, slender, unidentate, the pulvilli nearly as long as the claws. Genitalia: basal clasp segment long, slender, with a rather distinct internal, quadrate lobe basally; terminal clasp segment somewhat swollen at the base, irregular and tapering to an obtuse, spurred apex; dorsal plate short, broad, broadly and triangularly emarginate, the lobes narrowly rounded and sparsely setose; ventral plate moderately long, broad, deeply and narrowly and triangularly emarginate, the lobes rather broad and tapering slightly to a narrowly rounded, setose apex; style long, stout, narrowly rounded apically. Type Cecid. 1686.

Exuvium.—Length 1.5 mm., moderately stout, whitish transparent, the antennal cases with indistinct basal processes internally and extending to the second thoracic segment, the wing cases to the fourth abdominal segment, and the leg cases to the fifth abdominal segment, respectively; the dorsum of the abdominal segment rather thickly and uniformly covered with minute, chitinous forks; posterior extremity broadly rounded, somewhat lobed and incised apically.

Female.—Length 2 mm. Antennæ extending to the third abdominal segment, sparsely haired, dark reddish brown; 14 sessile segments, the fifth with a length one-half greater than its diameter, subcylindric, with a rather thick basal whorl of stout setæ, a scattering subapical whorl of more slender setæ and at the basal third and apically, low, unusually broad circumfili, the distal filum with the loops somewhat elevated and reaching nearly to the base of the following segment; terminal segment somewhat produced and

tapering to an irregular, narrowly rounded apex. Mesonotum dark brown. Scutellum reddish brown, postscutellum yellowish. Abdomen mostly dark red, the wings subhyaline and the wing venation practically as in the above described male and with the costal cell decidedly more obscured; halteres yellowish basally, brownish apically. Coxæ and legs mostly brownish straw. Ovipositor short, up-turned, the terminal lobes subquadrate, with a length one-fourth greater than the width and bearing a few long, slender setæ and numerous shorter ones. Other characters practically as in the above described male. Cecid. 1695.

This sex is provisionally associated with the preceding.

Streptodiplosis, n. gen.

A remarkable male referred to this genus suggests, in the somewhat broad wings, an affinity with Lobopteromyia Felt, from which it is easily separated by the very peculiar genitalia. Type *S. indica*.

Streptodiplosis indica, n. sp.

The one male described below was labeled "number 38, Kusti, Kalan Estate, North Wynaad, South India, February 16, on leaves infested by *Mytilaspis piperis* Green. U. Bahadur." It is probably predaceous upon this scale insect.

Male.—Length .75 mm. Antennæ twice the length of the body, rather thickly haired, pale grayish, the stems whitish transparent; 14 segments, the fifth having stems with a length two and one-half and three and one-half times their diameters, respectively; basal enlargement globose, with a sub-basal whorl of long, stout setæ and a subapical circumfilum, the moderately stout loops extending nearly to the globose distal enlargement, which latter bears similar setæ and loops; terminal segment having the basal enlargement oblate, a stem with a length about three times its diameter and the distal enlargement prolonged, with a length over twice its diameter and tapering at the distal third to an obliquely rounded apex. Palpi apparently quadri-articulate, the first segment small, subquadrate, the second with a length over twice its diameter, the third one-half longer, more slender, and the fourth one-half longer and more slender than the third. Face white. Mesonotum, scutellum, postscutellum and abdomen

yellowish white, the abdomen basally and laterally with an irregular, black marking, possibly due to the body contents. Wings hyaline, broad, with a length hardly twice the width, subcosta uniting with the anterior margin at the basal third, the third vein with its distal fourth curved posteriorly, a little before the apex of the wing, and the fifth vein joining the posterior margins at the distal fourth, its branch at the basal half; the forks of the fifth vein subobsolete and indistinct; halteres whitish transparent. Coxæ pale yellowish; legs mostly a very pale straw; the small claws with a length about half the diameter of the distal tarsal segment, simple, the pulvilli about as long as the claws. Genitalia large, extremely complex, greatly twisted; basal clasp segment long, irregular, swollen basally, slender apically; terminal clasp segment subapical, slender, irregular, the distal third somewhat expanded and thickly and finely setose; dorsal plate long, deeply and triangularly emarginate, the lobes slender, sparsely haired and extending nearly to the apex of the genitalia; ventral plate not recognized, the harpes strongly chitinized, convolute, irregularly S-shaped. Type Cecid. 1693.

SOME BEES FROM MADAGASCAR.

BY T. D. A. COCKERELL, BOULDER, COLORADO.

The following bees were received from the Queensland Museum; I do not know who collected them.

Pachymelus micrelephas Smith.

Miarinarivo, (Queensl. Mus. 9).—*P. sorar* Moesary is evidently a synonym.

Pachymelus grandidieri n. sp.

♀.—Length 23.5 mm., anterior wing 18; robust, black, with black, fulvous and pale ochraceous hair; tegument of clypeus (which is polished and sparsely punctured, not gibbous in middle), labrum, and greater part of basal half of mandibles orange; mandibles bidentate, and with a subapical fulvous patch; eyes large, brownish red; facial quadrangle longer than broad; scape short, red, with a broad, yellow stripe in front; flagellum ferruginous, becoming chestnut above, third antennal joint very nearly as long as the